

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	1	"isobutyric anhydride".clm. and "acetic anhydride".clm. and "isobutyric acid".clm.	US-PGPUB; USPAT	OR	OFF	2005/11/30 20:44

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	532	"isobutyric anhydride" with "acetic anhydride" with isobutyric	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2005/11/30 19:53
L2	365	l1 and distill\$	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2005/11/30 19:53

JP 6/5/2003  
Tulal 6/2/2004

=> d his

(FILE 'HOME' ENTERED AT 19:42:16 ON 30 NOV 2005)

FILE 'CAPLUS' ENTERED AT 19:42:31 ON 30 NOV 2005

FILE 'REGISTRY' ENTERED AT 19:42:39 ON 30 NOV 2005

L1 1 S 97-72-3/RN

FILE 'CAPLUS' ENTERED AT 19:43:07 ON 30 NOV 2005

L2 889 S L1

L3 38 S L1/PREP

L4 208 S L2 AND "ACETIC ANHYDRIDE"

FILE 'REGISTRY' ENTERED AT 19:45:06 ON 30 NOV 2005

L5 1 S 108-24-7/RN

FILE 'CAPLUS' ENTERED AT 19:45:19 ON 30 NOV 2005

=> s l1 and l5

889 L1

17101 L5

L6 346 L1 AND L5

=> s l3 and l5

17101 L5

L7 17 L3 AND L5

=> d his

(FILE 'HOME' ENTERED AT 19:42:16 ON 30 NOV 2005)

FILE 'CAPLUS' ENTERED AT 19:42:31 ON 30 NOV 2005

FILE 'REGISTRY' ENTERED AT 19:42:39 ON 30 NOV 2005

L1 1 S 97-72-3/RN

FILE 'CAPLUS' ENTERED AT 19:43:07 ON 30 NOV 2005

L2 889 S L1

L3 38 S L1/PREP

L4 208 S L2 AND "ACETIC ANHYDRIDE"

FILE 'REGISTRY' ENTERED AT 19:45:06 ON 30 NOV 2005

L5 1 S 108-24-7/RN

FILE 'CAPLUS' ENTERED AT 19:45:19 ON 30 NOV 2005

L6 346 S L1 AND L5

L7 17 S L3 AND L5

=> d l1

YOU HAVE REQUESTED DATA FROM FILE 'REGISTRY' - CONTINUE? (Y)/N:y

L1 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2005 ACS on STN

RN 97-72-3 REGISTRY

ED Entered STN: 16 Nov 1984

CN Propanoic acid, 2-methyl-, anhydride (9CI) (CA INDEX NAME)

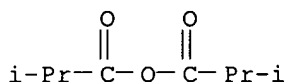
OTHER CA INDEX NAMES:

CN Isobutyric anhydride (6CI, 7CI, 8CI)

OTHER NAMES:

CN 2-Methylpropanoic acid anhydride

CN 2-Methylpropanoic anhydride  
 CN 2-Methylpropionic anhydride  
 CN Isobutanoic anhydride  
 CN Isobutyric acid anhydride  
 CN Isobutyryl anhydride  
 FS 3D CONCORD  
 MF C8 H14 O3  
 CI COM  
 LC STN Files: BEILSTEIN\*, CA, CAOLD, CAPLUS, CASREACT, CHEMCATS,  
 CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, DETHERM\*, HODOC\*, HSDB\*, IFICDB,  
 IFIPAT, IFIUDB, MSDS-OHS, NIOSHTIC, PS, SPECINFO, SYNTHLINE, TOXCENTER,  
 USPAT2, USPATFULL  
 (\*File contains numerically searchable property data)  
 Other Sources: DSL\*\*, EINECS\*\*, TSCA\*\*  
 (\*\*Enter CHEMLIST File for up-to-date regulatory information)



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

888 REFERENCES IN FILE CA (1907 TO DATE)  
 7 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
 889 REFERENCES IN FILE CAPLUS (1907 TO DATE)  
 12 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> d 15

YOU HAVE REQUESTED DATA FROM FILE 'REGISTRY' - CONTINUE? (Y)/N:y

L5 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2005 ACS on STN  
 RN 108-24-7 REGISTRY  
 ED Entered STN: 16 Nov 1984  
 CN Acetic acid, anhydride (9CI) (CA INDEX NAME)  
 OTHER CA INDEX NAMES:  
 CN Acetic anhydride (8CI)  
 OTHER NAMES:  
 CN Acetic oxide  
 CN Acetyl acetate  
 CN Acetyl anhydride  
 CN Acetyl ether  
 CN Acetyl oxide  
 CN Ethanoic anhydride  
 FS 3D CONCORD  
 MF C4 H6 O3  
 CI COM  
 LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN\*, BIOBUSINESS, BIOSIS,  
 BIOTECHNO, CA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS,  
 CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DETHERM\*, DIPPR\*,  
 EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN\*, HODOC\*,  
 HSDB\*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK\*, MSDS-OHS, NIOSHTIC,  
 PDLCOM\*, PIRA, PROMT, PS, RTECS\*, SPECINFO, SYNTHLINE, TOXCENTER, TULSA,  
 ULIDAT, USPAT2, USPATFULL, VTB  
 (\*File contains numerically searchable property data)  
 Other Sources: DSL\*\*, EINECS\*\*, TSCA\*\*  
 (\*\*Enter CHEMLIST File for up-to-date regulatory information)

Ac-O-Ac

\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

17060 REFERENCES IN FILE CA (1907 TO DATE)  
424 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
17101 REFERENCES IN FILE CAPLUS (1907 TO DATE)  
4 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> d bib abs 1-17

L7 ANSWER 1 OF 17 CAPLUS COPYRIGHT 2005 ACS on STN  
AN 2004:875971 CAPLUS  
DN 141:351760  
TI Dehydration process for making isobutyric anhydride from isobutyric acid  
and acetic anhydride  
IN Paul, Jean-Michel; Busca, Patrick  
PA Atofina, Fr.  
SO Eur. Pat. Appl., 6 pp.  
CODEN: EPXXDW  
DT Patent  
LA French  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1468980	A1	20041020	EP 2004-290802	20040325
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
	FR 2853900	A1	20041022	FR 2003-4785	20030416
	US 2005014974	A1	20050120	US 2004-824618	20040415
	JP 2004315536	A2	20041111	JP 2004-121366	20040416
PRAI	FR 2003-4785	A	20030416		

AB A dehydration process is presented for making isobutyric anhydride from  
isobutyric acid and acetic anhydride with distillation of the acetic acid  
byproduct.

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 2 OF 17 CAPLUS COPYRIGHT 2005 ACS on STN  
AN 2001:676744 CAPLUS  
DN 135:226715  
TI Two-step process for the preparation of triflic anhydride  
IN Hembre, Robert Thomas; Lin, Robert  
PA Eastman Chemical Company, USA  
SO PCT Int. Appl., 16 pp.  
CODEN: PIXXD2

DT Patent  
LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001066516	A1	20010913	WO 2001-US6704	20010301
	W: JP RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
	US 2002002301	A1	20020103	US 2001-792995	20010226
	US 6469206	B2	20021022		
	EP 1261582	A1	20021204	EP 2001-914629	20010301
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,				

IE, FI, CY, TR  
 JP 2003525926 T2 20030902 JP 2001-565334 20010301  
 PRAI US 2000-187832P P 20000308  
 US 2001-792995 A 20010226  
 WO 2001-US6704 W 20010301  
 OS CASREACT 135:226715; MARPAT 135:226715  
 AB Trifluoromethanesulfonic acid anhydride is prepared in high yield and selectivity by: (1) forming a mixed anhydride comprising a trifluoromethanesulfonyl residue and a carboxyl residue by contacting trifluoromethanesulfonic acid or a derivative of a carboxyl compound [selected from ketene, dialkyl ketenes (e.g., di-Me ketene), carboxylic acids, acyl halides, and carboxylate salts]; and (2) subjecting the mixed anhydride to reactive distillation where the mixed anhydride undergoes disproportionation to produce triflic anhydride and a higher-boiling carboxylic acid anhydride (e.g., acetic anhydride).

RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 3 OF 17 CAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1999:460864 CAPLUS  
 DN 131:199342  
 TI Nonordinary destruction of aliphatic aldehydes C2-C4 in solutions of giant palladium clusters Pd-561  
 AU Gladii, S. L.; Starchevskii, M. K.; Lastoviyak, , Yu. V.; Pezderskii, Yu. A.; Vargaftik, M. N.; Moiseev, I. I.  
 CS Borislavsk. Naukovo-Dosl. Inst. "Sintez", Borislav, Ukraine  
 SO Dopovidi Natsional'noi Akademii Nauk Ukraini (1998), (1), 174-178  
 CODEN: DNAUFL; ISSN: 1025-6415  
 PB Prezidiya Natsional'noi Akademii Nauk Ukraini  
 DT Journal  
 LA Ukrain/Ukrain  
 AB Giant palladium cluster (Pd561) solns. are found to catalyze at 333 K and 0.1 MPa the oxidative destruction of aliphatic aldehydes C2-C4 yielding carbon dioxide and hydrocarbons. Acetaldehyde is converted to CO2 and CH4. Destruction of propanal, butanal and i-butanal yields CO2 and olefins - accordingly, ethylene and propene. A reaction mechanism suggested includes the cleavage of the  $\alpha$ -C-C bond of RCH2-C=O coordinated with a Pd-atom.

L7 ANSWER 4 OF 17 CAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1997:589048 CAPLUS  
 DN 127:234784  
 TI Acylated polyallylamine and process for producing the same  
 IN Kato, Tadashi; Hayashi, Ikuo; Takeuchi, Minoru; Endo, Tadao  
 PA Nitto Boseki Co., Ltd., Japan  
 SO Eur. Pat. Appl., 25 pp.  
 CODEN: EPXXDW  
 DT Patent  
 LA English  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 791605	A2	19970827	EP 1997-300859	19970211
	EP 791605	A3	19980114		
	R: CH, DE, FR, GB, LI				
	JP 09286816	A2	19971104	JP 1997-3176	19970110
	JP 3199227	B2	20010813		
	NO 9700768	A	19970821	NO 1997-768	19970219
PRAI	JP 1996-31713	A	19960220		

AB Acylated polyallylamine with low cation d. is easily produced by treating a solution of polyallylamine having a polymerization degree of at least 10 with a carboxylic acid anhydride such as acetic anhydride. Thus, adding 189.4 g

Ac2O in 4 h to 3443 g 10% aqueous PAA-10C (polyallylamine) solution at 0-5°, adding 511.13 g 14.83% aqueous NaOH solution to neutralize HOAc byproduct, and electrodialyzing 44 h to remove salts gave 30 mol% acetylated product.

L7 ANSWER 5 OF 17 CAPLUS COPYRIGHT 2005 ACS on STN

AN 1997:41587 CAPLUS

DN 126:83599

TI Synthesis, Characterization, and Behavior of Hydridoruthenium Carbonyl Clusters Substituted with Functionalized Phosphines in the Presence of Hydrogen. 1.  $H_4Ru_4(CO)_8[P(CH_2OCOR)_3]_4$  ( $R = CH_3-$ ,  $C_2H_5-$ ,  $(CH_3)_2CH-$ ,  $(CH_3)_3C-$ ,  $(S)-C_2H_5CH(CH_3)-$ )

AU Bianchi, Mario; Frediani, Piero; Salvini, Antonella; Rosi, Luca;

Pistoiesi, Leonardo; Piacenti, Franco; Ianelli, Sandra; Nardelli, Mario

CS Dipartimento di Chimica Organica, Universita di Firenze, Florence, 50121, Italy

SO Organometallics (1997), 16(3), 482-489

CODEN: ORGND7; ISSN: 0276-7333

PB American Chemical Society

DT Journal

LA English

AB The synthesis and characterization of phosphines containing ester groups  $P(CH_2O_2CR)_3$  ( $R = CH_3$ ,  $C_2H_5$ ,  $Me_2CH$ ,  $Me_3C$ ,  $(S)-C_2H_5CHMe$ ) are reported. The new hydridoruthenium complexes  $H_4Ru_4(CO)_8[P(CH_2O_2CR)_3]_4$  were synthesized and characterized. The structure of (+)-(S)- $H_4Ru_4(CO)_8\{P[CH_2O_2CCHMeC_2H_5]_3\}_4$  was determined by x-ray diffraction. The behavior of these complexes in hydrocarbon solution with  $H_2$  under pressure (130 atm) in the temperature range 25-130° was studied. The ester groups present in the ligand  $P(CH_2O_2CR)_3$  are hydrogenated under mild conditions with formation of the corresponding alc.  $RCH_2OH$ .

RE.CNT 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 6 OF 17 CAPLUS COPYRIGHT 2005 ACS on STN

AN 1993:602807 CAPLUS

DN 119:202807

TI Cobalt(II)-catalyzed reaction of aldehydes with acetic anhydride under an oxygen atmosphere: scope and mechanism

AU Bhatia, Beena; Punniyamurthy, T.; Iqbal, Javed

CS Dep. Chem., Indian Inst. Technol., Kanpur, 208016, India

SO Journal of Organic Chemistry (1993), 58(20), 5518-23

CODEN: JOCEAH; ISSN: 0022-3263

DT Journal

LA English

OS CASREACT 119:202807

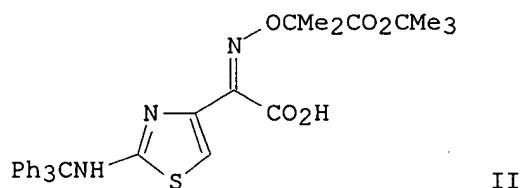
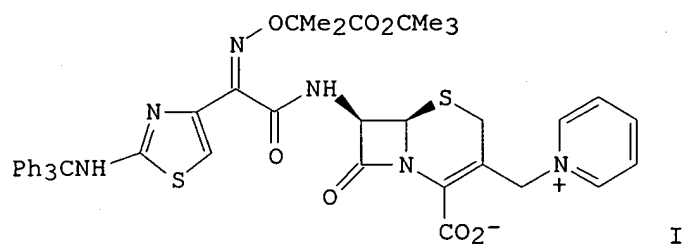
AB The reaction of aldehydes with acetic anhydride in the presence of catalytic cobalt(II) chloride under an oxygen atmospheric at ambient temperature is

dependent upon the reaction medium. Aliphatic aldehydes react in acetonitrile to give 1,2-diones whereas the aromatic aldehydes are acylated to yield the corresponding acylals. On the other hand, carboxylic acids are obtained from aliphatic and aromatic aldehydes by conducting the reaction

in

dichloromethane or benzene. Cobalt(II) chloride in acetonitrile catalyzes the conversion of aliphatic aldehydes to the corresponding anhydrides in the absence of acetic anhydride whereas aromatic aldehydes remain largely unaffected under these conditions. A preliminary mechanistic study in three different solvents (i.e. acetonitrile, dichloroethane, and DMF) has revealed that in acetonitrile and in the presence of acetic anhydride, aliphatic aldehydes behave differently than aromatic aldehydes. Some trapping expts. using Me acrylate and stilbene have been conducted to demonstrate the occurrence of an acyl cobalt and peroxyacyl cobalt intermediate during these reactions.

L7 ANSWER 7 OF 17 CAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1993:427866 CAPLUS  
 DN 119:27866  
 TI Carboxylic sulfonic mixed anhydrides: general utility and application to the synthesis of ceftazidime  
 AU Wirth, David D.  
 CS Lilly Res. Lab., Eli Lilly and Co., Lafayette, IN, 47902, USA  
 SO Tetrahedron (1993), 49(8), 1535-40  
 CODEN: TETRAB; ISSN: 0040-4020  
 DT Journal  
 LA English  
 OS CASREACT 119:27866  
 GI



AB A high-yielding acylation process which utilizes a mixed anhydride of the type  $\text{RCO}_2\text{SO}_2\text{CH}_3$  for the synthesis of the ceftazidime ester I is detailed. The mixed anhydride is conveniently prepared by addition of  $\text{MeSO}_2\text{Cl}$  to the triethylammonium salt of the oxyiminoacetic acid II. Although known for some time, these anhydrides have not been used often in acylations. This lack of general utility is explained by side reactions, especially formation of the carboxylic sym. anhydride in sterically unhindered systems.

L7 ANSWER 8 OF 17 CAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1992:614970 CAPLUS  
 DN 117:214970  
 TI Method for purification of carboxylic acids and anhydrides  
 IN Zoeller, Joseph Robert; Moncier, Regina Michelle  
 PA Eastman Kodak Co., USA  
 SO PCT Int. Appl., 13 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 FAN.CNT 1

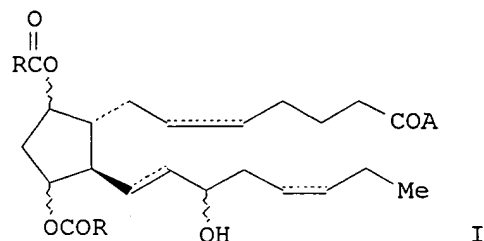
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9212954	A1	19920806	WO 1992-US631	19920127
	W: CA, JP, KR				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, MC, NL, SE				
	US 5175363	A	19921229	US 1991-646029	19910128
	CA 2098293	AA	19920729	CA 1992-2098293	19920127



EP 569492 A1 19931118 EP 1992-905057 19920127  
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, MC, NL, SE  
 JP 06505257 T2 19940616 JP 1992-505713 19920127  
 PRAI US 1991-646029 A 19910128  
 WO 1992-US631 W 19920127  
 AB A method for reducing the amount of olefinic impurity in the title C2-8 carboxylic acids and C4-16 anhydrides comprises contacting them with a strong acidic resin. A sample of AcOH contaminated with 221 ppm 1-octene was added to Amberlyst-15, the mixture refluxed for 3 h to give AcOH containing only 15 ppm 1-octene.

L7 ANSWER 9 OF 17 CAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1991:631971 CAPLUS  
 DN 115:231971  
 TI Preparation of intraocular pressure-reducing 9,11-diacyl prostaglandins  
 IN Chan, Ming Fai; Woodward, David Frederick; Gluchowski, Charles  
 PA Allergan, Inc., USA  
 SO Eur. Pat. Appl., 12 pp.  
 CODEN: EPXXDW  
 DT Patent  
 LA English  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 410787	A2	19910130	EP 1990-308270	19900727
	EP 410787	A3	19911227		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE				
	CA 2020842	AA	19910128	CA 1990-2020842	19900710
	AU 9059791	A1	19910131	AU 1990-59791	19900724
	AU 635294	B2	19930318		
	JP 03058932	A2	19910314	JP 1990-201045	19900727
	US 5034413	A	19910723	US 1990-585284	19900918
PRAI	US 1989-385834	A	19890727		
OS	MARPAT 115:231971				
GI					



AB The title compds. I [dashed bond represents single bond or double bond (cis and trans configuration); A = OH, pharmaceutically acceptable salt thereof, OR1; R1 = alkyl; R = (un)saturated acyclic hydrocarbon, (CH<sub>2</sub>)<sub>n</sub>R<sub>2</sub>; n = 0-10; R<sub>2</sub> = aliphatic hydrocarbon ring, aromatic or heteroarom. ring] were prepared

Treatment of prostaglandin F<sub>2</sub>α 15-tert-butyldimethylsilyl ether with isobutyric anhydride in the presence of pyridine and 4-dimethylaminopyridine, followed by deprotection, gave 9,11-diisobutyryl prostaglandin F<sub>2</sub>α (II). Six hours after topical administration of one drop of 0.1% solution of II, the intraocular pressure was decreased by 1.5 mmHg in rabbits.

L7 ANSWER 10 OF 17 CAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1990:234482 CAPLUS

DN 112:234482  
TI Polymer-catalyzed synthesis of acid anhydrides  
IN Fife, Wilmer K.; Zhang, Zhi Dong  
PA Indiana University Foundation, USA  
SO U.S., 10 pp. Cont.-in-part of U.S. Ser. No. 52,439.  
CODEN: USXXAM  
DT Patent  
LA English  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4874558	A	19891017	US 1988-284846	19881213
PRAI	US 1987-52439	A2	19870521		
OS	CASREACT 112:234482; MARPAT 112:234482				

AB Acid anhydrides are prepared by reaction of carboxylic acids or carboxylate salts with acid halides or acyl-activating agents (e.g., SOCl<sub>2</sub>) at 0° to room temperature in the presence of catalysts selected from: (a) solid copolymers of 4-vinylpyridine, (b) solid copolymers of 4-vinylpyridine 1-oxide, and (c) water-soluble homopolymers of 4-vinylpyridine 1-oxide. Thus, reaction of Me(CH<sub>2</sub>)<sub>4</sub>COCl with PhCO<sub>2</sub>H using Reillex 425 catalyst (crosslinked 4-vinylpyridine copolymer) in CH<sub>2</sub>Cl<sub>2</sub> at 0° for 10 min to give Me(CH<sub>2</sub>)<sub>4</sub>CO<sub>2</sub>COPh with 94.6% yield and 100% selectivity. Alternatively, use of EtCO<sub>2</sub>H and SOCl<sub>2</sub> at 22-25° in CH<sub>2</sub>Cl<sub>2</sub> with the same catalyst gave 96.0% (EtCO)<sub>2</sub>O. Use of acid halides and Na formate with a type (b) catalyst gave various mixed formic anhydrides. A type (c) catalyst was used with halides and carboxylate salts in H<sub>2</sub>O-CH<sub>2</sub>Cl<sub>2</sub> mixts.

L7 ANSWER 11 OF 17 CAPLUS COPYRIGHT 2005 ACS on STN  
AN 1987:476992 CAPLUS  
DN 107:76992

TI Phase-managed organic synthesis. 3. Symmetrical anhydrides from carboxylic acids via polymer-assisted reaction  
AU Fife, Wilmer K.; Zhang, Zhi Dong  
CS Dep. Chem., Indiana Univ.-Purdue Univ., Indianapolis, IN, 46223, USA  
SO Tetrahedron Letters (1986), 27(41), 4937-40  
CODEN: TELEAY; ISSN: 0040-4039  
DT Journal  
LA English  
OS CASREACT 107:76992  
AB Sym. anhydrides are produced quickly and in high yield by treating mixts. of a carboxylic acid and one-half equivalent thionyl chloride in dichloromethane with a solid-state copolymer of 4-vinylpyridine. This conversion is accomplished equally well in batch or column mode.

L7 ANSWER 12 OF 17 CAPLUS COPYRIGHT 2005 ACS on STN  
AN 1987:423056 CAPLUS  
DN 107:23056  
TI Phase-managed organic synthesis. 2. A new polymer-assisted synthesis of acid anhydrides  
AU Fife, Wilmer K.; Zhang, Zhi Dong  
CS Dep. Chem., Indiana Univ.-Purdue Univ., Indianapolis, IN, 46223, USA  
SO Tetrahedron Letters (1986), 27(41), 4933-6  
CODEN: TELEAY; ISSN: 0040-4039  
DT Journal  
LA English  
OS CASREACT 107:23056  
AB A solid-phase copolymer of 4-vinylpyridine is a highly effective reagent for the synthesis of acid anhydrides from equimolar amts. of carboxylic acids and acid chlorides. The process may be carried out in batch or column mode.

L7 ANSWER 13 OF 17 CAPLUS COPYRIGHT 2005 ACS on STN

AN 1976:432429 CAPLUS  
DN 85:32429  
TI O-Acylation using organothallium compounds  
IN Taylor, Edward C.; McKillop, Alexander  
PA USA  
SO U.S., 7 pp. Division of U.S. 3,832,381.  
CODEN: USXXAM  
DT Patent  
LA English  
FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3947488	A	19760330	US 1974-471925	19740521
	US 3626018	A	19711207	US 1968-700352	19680125
	US 3832381	A	19740827	US 1971-112815	19710204
PRAI	US 1968-700352	A3	19680125		
	US 1971-112815	A3	19710204		

AB Treatment of  $\beta$ -dicarbonyl compds. containing active H with ROTl (R = alkyl) gave thallous salts of the  $\beta$ -dicarbonyl compds., reaction of which with alkyl halides gave high yields of C-alkyl derivs., with acyl halides at room temperature gave C-acyl derivs., and with acyl halides at .apprx.-78° gave O-acyl derivs. In addition, reaction of acyl or aroyl halides with thallous phenolates or carboxylates gave phenyl esters or anhydrides, resp., and thallous salts of N heterocycles or of lactams were N-alkylated with alkyl halides, and the latter were O-acylated with acyl halides. Thus, (MeCO)<sub>2</sub>CH<sub>2</sub> with EtOTl gave quant. (MeCO)<sub>2</sub>CHTl, which gave 100% (MeCO)<sub>2</sub>CHMe when treated with MeI.

L7 ANSWER 14 OF 17 CAPLUS COPYRIGHT 2005 ACS on STN

AN 1976:73840 CAPLUS

DN 84:73840

TI The 1,3-dipole in the sulfilimine-phosphine system. IV. Preparations of acid anhydrides, amides, esters, and thioesters

AU Oae, Shigeru; Aida, Tetsuo; Furukawa, Naomichi

CS Inst. Chem., Tsukuba Univ., Tsukuba, Japan

SO Chemical & Pharmaceutical Bulletin (1975), 23(11), 3011-16

CODEN: CPBTAL; ISSN: 0009-2363

DT Journal

LA English

OS CASREACT 84:73840

AB Complexes formed between N-arylsulfonylsulfilimines and Ph<sub>3</sub>P, for example a couple of S-benzyl-S-phenyl-N-p-tosylsulfilimine and Ph<sub>3</sub>P, reacted with such compds. as carboxylic acids, alcs., amines and acid anhydrides affording various interesting products. Among them, the reaction with carboxylic acids gave the corresponding anhydrides in substantial yields, and this reaction was extended to prepare esters and amides. All these reactions can be explained by assuming the initial formation of a 1,3-dipole intermediate (sulfurane) between sulfilimine and Ph<sub>3</sub>P.

L7 ANSWER 15 OF 17 CAPLUS COPYRIGHT 2005 ACS on STN

AN 1975:427818 CAPLUS

DN 83:27818

TI 1,3-Dipole in the sulfilimine-phosphine system. III. Acid anhydride, ester, and amide condensations by sulfilimine-phosphine system

AU Aida, Tetsuo; Furukawa, Naomichi; Oae, Shigeru

CS Fac. Eng., Osaka City Univ., Osaka, Japan

SO Chemistry Letters (1975), (1), 29-32

CODEN: CMLTAG; ISSN: 0366-7022

DT Journal

LA English

AB S-Alkyl-S-phenyl-N-p-tosylsulfilimine and Ph<sub>3</sub>P reacted with various carboxylic acids affording their anhydrides. The reaction was successfully extended to an ester- or amide-condensation reaction. These

results can be interpreted by the initial formation of a 1,3-dipole between the sulfilimine and the phosphine.

L7 ANSWER 16 OF 17 CAPLUS COPYRIGHT 2005 ACS on STN

AN 1974:463092 CAPLUS

DN 81:63092

TI Synthesis of 4-oxo-2-alkyn-1-ols

AU Duranti, Ermanno; Balsamini, Cesarino

CS Inst. Org. Chem., Univ. Urbino, Urbino, Italy

SO Synthesis (1974), (5), 357-8

CODEN: SYNTBF; ISSN: 0039-7881

DT Journal

LA English

AB HC.tplbond.CCH2OH added to 2,3-dihydropyran to give 3-(tetrahydropyran-2-yloxy)-1-propyne, which was treated with NaNH<sub>2</sub> in anhydrous Et<sub>2</sub>O and then (RCO)<sub>2</sub>O (R = Me, Et, Me<sub>2</sub>CH, n-C<sub>6</sub>H<sub>13</sub>, n-C<sub>11</sub>H<sub>23</sub>, PhCH<sub>2</sub>, Ph) to give 50-90% yields of the corresponding RCOC.tplbond.CCH2OH (I) after hydrolysis with dilute H<sub>2</sub>SO<sub>4</sub> in MeOH; I were converted to the corresponding 2,4-dinitrophenylhydrazones and/or semicarbazones.

L7 ANSWER 17 OF 17 CAPLUS COPYRIGHT 2005 ACS on STN

AN 1969:512025 CAPLUS

DN 71:112025

TI Organic compounds, including anhydrides useful as monomers

IN McKillop, Alexander; Taylor, Edward Curtis

SO Ger. Offen., 27 pp.

CODEN: GWXXBX

DT Patent

LA German

FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 1903598	A	19690828	DE 1969-1903598	19690124
	US 3626018	A	19711207	US 1968-700352	19680125
	GB 1205373	A	19700916	GB 1969-1205373	19690122
	GB 1205374	A	19700916	GB 1969-1205374	19690122
	US 3780021	A	19731218	US 1971-112812	19710204
PRAI	US 1968-700352	A	19680125		

AB Tl(I) salts of  $\beta$  dicarbonyl compds., phenols, carboxylic acids, heterocyclic compds., and lactams are used in various transformations of these compds. including alkylation, acylation, ester and anhydride formation, and the preparation of biaryl compds. Thus, a suspension of 10.10 g. Tl(I) acetylacetonate (I) in 100 ml. MeI was refluxed 5 hrs., cooled, filtered through kieselgur, freed of excess MeI, and distilled, giving 3.7 g. 3-methylpentene-2,4-dione, b<sub>35</sub> 78-80°. Similarly, gaseous AcF was added to a suspension of 30.0 g. I in 150 ml. tetrahydrofuran at 3.0 ml./min. over 30 min., giving 96% HCAc<sub>3</sub>, b<sub>1.0</sub> 90-5°. The following compds. were prepared similarly (compound and b.p./mm. given): Et 2-methylacetoacetate, 82°/25; 2-methyl-2 (ethoxycarbonyl)-cyclopentanone, 124-6°/35; Et 2-methylbenzoylacetate, 96-7°/0.25; Et 2,2-dimethylbenzoylacetate, 98-100°/0.35; Et 2-ethylacetoacetate, 94-6°/25; 3-ethylpentane-2,4-dione, 78-80°/17; 2-ethyl-2-(ethoxycarbonyl)cyclopentanone, 134-6°/37; Et 2-ethylbenzoylacetate, 150-2°/0.6; Et 2-ethyl-2-methyl-benzoylacetate, 100-2°/0.3; Et 2-isopropylacetoacetate, 90-2°/18; 3-isopropylpentane-2,4-dione, 94°/45; 2-isopropyl-2-(ethoxycarbonyl)cyclopentanone, 136-8°/37; Et 2-isopropyl-benzoylacetate, 108-10°/0.5; Et 2-isopropyl-2-methylbenzoyl-acetate, 116-18°/0.35. A solution of 0.0395 mole p-ClC<sub>6</sub>H<sub>4</sub>MgBr in 25 ml. benzene and 25 ml. tetrahydrofuran was treated with 22.46 g. TlBr, refluxed 7 hrs., cooled, poured into 150 ml. dilute HCl, and extracted with ether to give 61% 4,4'-dichlorobiphenyl, m. 148°. p-Quaterphenyl, m. 320°, and N,N,N',N'-tetramethyl-

benzidine, subliming at 165°/0.05 mm. and m. 195°, were similarly prepared. A solution of 6.58 g. phenol in 150 ml. benzene was heated nearly to reflux and mixed with 17.43 g. TlOEt in 50 ml. benzene, giving a precipitate of TlOPh in <1 min. The precipitate was separated and dried, giving 23.05 g.

TlOPh, m. 231-5°. A solution of 1.33 g. AcCl in 3 ml. Et2O was added dropwise over 5 min. to 5 g. TlOPh in 15 ml. Et2O. The mixture was stirred 1 hr. at room temperature, filtered, and the filtrate evaporated and distilled, giving

2.27 g. PhOAc, b58 110°. The following aryl esters were prepared by this method (compound and m.p. or b.p./mm. given): Ph pivalate, 112°/25; PhOBz, 70°; p-nitrophenyl acetate, 79-80°; p-nitrophenyl pivalate, 95-7°; p-nitrophenyl benzoate, 144-5°; o-methoxyphenyl acetate, 35-6°; o-methoxyphenyl pivalate, 140°/1.7; o-methoxyphenyl benzoate, 205°/15; p-methoxyphenyl acetate, 35-6°; p-methoxyphenyl benzoate, 88-9°; β-naphthyl acetate, 70-1°; β-naphthyl pivalate, 65.5-6.0°; β-naphthyl benzoate, 106.5-7.0°.

A solution of 17.43 g. Tl2O in 200 ml. Et2O was rapidly added to 8.54 g. BzOH in 500 ml. warm Et2O. The precipitate was separated, recrystd. from aqueous MeOH, and

dried, giving 95-9% BzOTl, m. 340°. A solution of 1.205 g. pivaloyl chloride in 3 ml. Et2O was added to a suspension of 3.25 g. finely divided BzOTl and 20 ml. Et2O, stirred 8 hrs. at 25° to give 2.06 g. mixed benzoic-pivalic anhydride. The sym. anhydride, Bz2O, m. 42°, was obtained by treating 0.01 mole TlOBz with 0.005 mole SOCl2. Pivalic, isobutyric, and acetic anhydrides were similarly prepared. A solution of 13.30 g. 2-pyridone (Ia) in 300 ml. of a mixture of pentane and enough EtOH for dissoln. was treated with 10 ml. TlOEt. The precipitate was separated, giving 40.77

g. Ia Tl(I) salt (II), m. 152-5°. A suspension of 9.86 g. II in 50 ml. dry ether was treated with 2.75 g. AcCl over 10 min. and then stirred 30 min. to give 98% 2-acetoxypyridine. 2-(Benzoyloxy)pyridine, m. 39-41°, 5-methyl-6(5H)-phenanthridinone, m. 108°, and 5-ethyl-6(5H)-phenanthridinone, m. 87-90°, were similarly prepared. TlOEt was added to a solution of 1.0 g. adenine (III) in AcNMe2 until no more precipitation was observed, stirred 5 hrs., filtered, and the residue purified, giving 2.3 g. III Tl(I) salt (IV), m. 330°. IV was suspended in AcNMe2 and treated with 1.1 g. PhCH2Br, giving 45% 9-benzyladenine, m. 230°. 6-Chloro-9-benzylpurine, m. 78°, and 9-benzylpurine, m. 99-100°, were similarly prepared from the 6-chloropurine and purine and purine Tl(I) salts, m. 330° and 255° (decomposition), resp. The applications for the various types of compds. prepared were listed.

=>